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# Intellectual capital reporting practices of the top Australian firms

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## Abstract

Using content analysis of annual reports of the top 20 firms (by market capitalization) listed on the Australian stock exchange in 2004, this paper describes the state of intellectual capital reporting practices in Australia. The paper also compares the results with a previous Australian study by Guthrie and Petty (2000) and reconfirms that reporting of intellectual capital is yet to be done within a consistent framework. The IC reporting examined was not structured and systematic. There is still no established and generally accepted Australian framework for IC reporting, which could be a reason for inconsistency. Of the IC-related information reported, 73% was in qualitative terms, which essentially creates difficulty in setting benchmarks for managing, measuring and reporting IC performance. External capital was the most reported category, with 48% of the overall IC reporting in this category. It was followed by internal capital with 31% and human capital with 21%. When compared to previous studies, the descriptive statistics show that there has been a modest increase in IC reporting. However, the increase in quantitative reporting is remarkable.



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# INTELLECTUAL CAPITAL REPORTING PRACTICES OF THE TOP AUSTRALIAN FIRMS

***Using content analysis of annual reports of the top 20 firms (by market capitalisation) listed on the Australian stock exchange in 2004, this paper describes the state of intellectual capital reporting practices in Australia. The paper also compares the results with a previous Australian study by Guthrie and Petty (2000) and reconfirms that reporting of intellectual capital is yet to be done within a consistent framework. Although most of the reporting was done through qualitative, rather than quantitative, statements, an encouraging shift towards quantitative reporting is evident.***

The relevance of traditional financial accounting information has diminished in the past few decades (Lev and Zarowin 1999), and the limitations of the traditional financial reporting framework have attracted greater attention in the wake of a series of accounting scandals and corporate collapses in recent years (Barsky *et al* 2003, Abeysekera 2005a, 2006a). Intellectual capital (IC), which has become increasingly important with the rise of the knowledge-based economy, has the potential to explain many of the differences causing divergence between a firm's market value and its book value (Brennan and Connell 2000, Abeysekera 2003a, 2003b) that is unexplained through traditional financial reporting (Petty and Guthrie 2000a). Research also shows that IC reporting can have a number of benefits. These include improving the decision-making capability of stakeholders about the firm and its performance, and helping reduce the gap between a firm's market and book value (Marr *et al* 2003, Andriessen 2004). The importance of IC has special relevance to Australia, where the service sector contributes almost 80% of economic activity, and where recent debate has focused a shift in the economy from manufacturing and resource sectors to more innovative and high-tech sectors (ABS 2004, Backing Australia's Ability 2005). These trends and changes in the Australian economy are expected to have influenced the IC reporting of Australian firms.

With the backdrop of developments in IC reporting and its greater visibility in the accounting profession and academia, it is worth investigating how Australian firms report on their intellectual capital. This paper employs content analysis to investigate IC reporting in the annual reports of the top 20 firms (by market capitalisation) listed on the Australian Stock Exchange (ASX) in 2004. The study has five aims. First, the IC reporting literature is reviewed, to provide an understanding of how firms voluntarily report IC in their annual reports. The review explains important theoreti-

cal and empirical contributions as well as gaps in the literature relating to the identification and reporting of IC in annual reports. Second, the study investigates the voluntary reporting of IC in the annual reports of a sample of ASX-listed firms. Third, where appropriate, the findings are compared with those of previous studies, particularly the Australian study of Guthrie and Petty (2000). Fourth, the study uses a theoretical framework to analyse some of the results and explain why firms might prefer to disclose certain types of IC rather than others. Finally, the study identifies avenues for future research into IC reporting.

## LITERATURE REVIEW

### What is intellectual capital?

The literature provides a number of definitions of IC (Stewart 1997, Union Fenosa 1999, Martensson 2000, Ordónez de Pablos 2002). Further, IC has been categorised in several ways for analysis and interpretation (OECD 1999, Abeysekera and Guthrie 2004). The recent literature, in general, describes IC in three dimensions: internal (structural) capital, external (relational/customer) capital and human capital (Brennan 2001, Ordónez de Pablos 2002, Bozzolan *et al* 2003, Abeysekera and Guthrie 2004, 2005). Internal capital and external capital comprise "organisational capital" as classified by the OECD. Internal capital includes intellectual properties, processes, organisational culture, etc., whereas external capital represents the relationship with various stakeholders (Roos *et al* 1998). External capital is the knowledge embedded in organisational relationships with customers, suppliers, stakeholders and strategic alliance partners (Bontis 1998). In this paper we classify IC into three categories — internal, external and human capital — and we use a comparison with a similar previous Australian study of IC reporting practices to understand the changes that have taken place from a theoretical perspective.

### Recent studies of intellectual capital reporting

Recent studies have attempted to explore the IC practices of firms through analysis of their annual reports (Abeysekera 2006). Studies making notable contribution in this regard are those of Guthrie *et al* (1999) and Guthrie and Petty (2000) in Australia, Brennan (2001) in Ireland, Bozzolan *et al* (2003) in Italy, April *et al* (2003) in South Africa, and Abeysekera and Guthrie (2004, 2005) in their study of Sri Lanka. Subsequent studies in IC reporting literature have cited Guthrie *et al* (1999) and Guthrie and Petty (2000) interchangeably but essentially they refer to a content analysis[1] of the annual reports of Australian-listed firms to ascertain the level of IC disclosure. In undertaking their research the authors of the Australian study categorised intangibles into internal structure (internal capital), external structure (external capital) and employee competence (human capital). Their research revealed that key components of IC were poorly understood, inadequately identified, inefficiently managed and inconsistently reported. On the whole, firms did not have a consistent framework for reporting IC. The Australian research showed that most of the IC information reported related to external capital (40%). Reporting of human capital and internal capital occurred equally at 30%. The framework for this research has been used in several subsequent studies including the present one (see Brennan 2001, Bozzolan *et al* 2003, April *et al* 2003).

THEIR RESEARCH REVEALED THAT KEY COMPONENTS OF IC WERE POORLY UNDERSTOOD, INADEQUATELY IDENTIFIED, INEFFICIENTLY MANAGED AND INCONSISTENTLY REPORTED.

Brennan (2001) carried out a similar study of technology and people-oriented firms listed on the Irish stock exchange, analysing the annual reports of 11 listed firms using the IC framework of Guthrie *et al* (1999). Brennan found significant differences between market and book values, suggesting that knowledge-based Irish listed firms had a substantial level of non-physical, intangible, intellectual assets. According to Brennan, these assets were not fully referred to in annual reports, and when they were referred to, it was in highly qualitative terms.

Bozzolan *et al* (2003) examined voluntary IC reporting by 30 listed Italian non-financial firms in annual reports from 2001. The sample was chosen randomly from two markets in the Italian stock exchange. The first group came from the *nuovo marcato* (new market), the market for hi-tech industries, while the second group was chosen from "ordinario, star and blue chip", representing "traditional" industries. This study was also mod-

elled after Guthrie and Petty (2000), using the same IC framework with a slight modification. Bozzolan *et al* found that, as in previous IC reporting studies, the amount and attributes disclosed were mostly external capital. The authors claimed that the extent of IC disclosures was determined, at least in part, by industry type and market capitalisation.

April *et al* (2003) conducted a similar study involving the 20 largest listed firms in South Africa, focusing on the mining industry, which had seven firms in the top 20. The research methodology was based on that of Guthrie *et al* (1999). Results showed that mining firms reported on fewer IC attributes than other firms, focusing more on external capital attributes such as business collaborations and favourable contracts. Overall, external capital was the most reported IC category within the sample.

Abeysekera and Guthrie (2005) examined the annual reports of each of the top 30 firms listed on the Colombo stock exchange over the period 1998/1999 to 1999/2000. They found that the most reported IC category during the period of study was external capital. The IC framework used in this study differed from that of Guthrie *et al* (1999) in that it included more IC attributes (eg, training) in its human capital category, as the focus was on human capital reporting in the developing nation of Sri Lanka.

The preceding review of literature shows that the IC reporting studies in different countries have used corporate annual reports as the main source of data and have employed content analysis as the method of investigating IC reporting trends and practices. It is also important that all the studies used an IC framework adopted directly or with slight modification from the study reported by Guthrie *et al* (1999) and Guthrie and Petty (2000). The present study similarly adopts the content analysis method. It also uses annual reports as the unit of analysis. The IC framework applied is the same as that used by Guthrie *et al* (1999) with a slight modification

## THEORETICAL FRAMEWORK AND RESEARCH QUESTIONS

This paper uses media agenda-setting theory to analyse IC reporting in a sample of Australian companies and to explain why firms might prefer to disclose particular IC attributes rather than others. Other theoretical perspectives such as legitimacy theory (Guthrie and Parker 1989, Wilmshurst and Frost 2000) and stakeholder theory (Jones and Fleming 2003) could be engaged but media agenda-setting theory seems fruitful in the context of this study.

The influential American writer, journalist and political commentator Walter Lippmann is regarded as the introducer of the basic ideas of today's media agenda-setting theory. Lippmann (1922) suggested that people did not respond directly to events in the real world, but rather reacted to the images furnished by the mass media. The basic principle of the theory in its modern form, however, can be traced to Bernard Cohen (1963, p. 13) who stated that the press "may not be successful much of the time in telling its readers what to think, but it is stunningly successful in telling its readers what to think *about*".

Against the backdrop of such notions of media's influence, Maxwell McCombs and Donald Shaw provided the first systematic study of agenda-setting in the 1970s and propounded the theory that mass media set the agenda for public opinion by highlighting certain issues (McCombs and Shaw 1972, Mayer 1991). They found the main effect of news media to be agenda-setting, telling people what to think about, and how to think about it (Griffin 2006, p. 395). Zhu and Blood (1996, p. 99) illustrate this: "Media agenda-setting is the process whereby the news media lead the public in assigning relative importance to various public issues. The media accomplish this agenda-setting function not by directly telling the public that a certain issue is more important than another . . . instead, they signal the importance of certain issues by giving these issues preferential treatment, such as more frequent coverage and more prominent positions."

Hence, it can be argued that news outlets act as *gatekeepers* of information and make choices about what to report. What the public knows and cares about at any time is mostly a product of media gatekeeping (Griffin 2006, p. 399). It is safe to say that media agenda-setting shapes the public agenda and can have far-reaching consequences. For example, public concerns about certain issues, triggered by news coverage, can affect policy-making (Page and Sharpio 1992). The agenda-setting metaphor has been applied to other contexts, including voluntary reporting, such as the public disclosure of corporate environmental performance information (see Brown and Deegan 1998). Brown and Deegan argued that media could be effective in driving the community's concern about the environmental performance of a particular firm, influencing its reporting strategies.

### Corporate annual reports as media

Corporate annual reports are considered by stakeholders to be an important source of information about a firm (Lang and Lundholm 1993, Niemark 1995). They are produced regularly and provide an opportunity for firms to go beyond reporting simply financials (Cameron and Guthrie 1993) and to show leadership and vision reflecting their values and position (Niemark 1995). Further, as in the gatekeeping concept in media agenda-setting theory, what firms include in or omit from their

annual reports reflects a conscious decision that communicates a significant message to stakeholders (Guthrie *et al* 1999). Thus firms may endeavour through their annual reports to persuade their stakeholders to assign relative importance to certain issues. They accomplish this agenda-setting function through giving such issues greater prominence and coverage in the annual reports. It could be argued that the purpose is to give stakeholders, such as investors, the comfort of being informed about what they should think important. In terms of media agenda-setting theory, the issues that corporate managers believe stakeholders (primarily investors but also suppliers and customers) consider important can be usefully explained by an industry classification. This distinction can also be analysed in terms of reporting differences between the knowledge-based service sector and other industry sectors (Brennan 2001, Bozzolan *et al* 2003).

### Research questions

In light of the literature review and in the context of the proposed theoretical framework, this study addresses three research questions:

- What is the current state of IC reporting in Australia?
- Can the media agenda-setting theory explain the state of IC reporting in relation to reporting differences among industry sectors (classified according to the Global Industry Classification Standard[2]), and reporting differences between the knowledge-based and service sector and other sectors?
- How do the results of the current study compare with those of the previous studies and can the media agenda-setting theory explain the comparison?

## RESEARCH METHOD

The firms selected in the sample were the top 20 firms (by market capitalisation) listed on the Australian Stock Exchange (ASX) at 31 December 2004. These firms represented approximately 60% of the total market capitalisation of the ASX at that time.[3] Table 1 lists the companies.

Annual reports of the firms listed in Table 1 were used as the source of raw data for this study. Lang and Lundholm (1993) demonstrated that the reporting level in annual reports is positively correlated with the amount of corporate information communicated to the market and to stakeholders using other media. Additionally, annual reports are the main external reporting vehicle used for communicating IC information. Finally, annual reports offer an opportunity for a comparative analysis of management attitudes and policies across reporting periods (Niemark 1995, Guthrie *et al* 2004).

Due to the differences in the financial year-ends of the firms in the sample, annual reports were

**TABLE 1: TOP 20 AUSTRALIAN FIRMS BY MARKET CAPITALISATION[4]**

| Ranking by mkt. cap. | ASX code & firm name | Industry group (GICS) |
|---|---|---|
| 1 | BHP (BHP Billiton Limited) | Materials |
| 2 | TLS (Telstra Corporation Limited) | Telecommunications services |
| 3 | RIO (Rio Tinto Limited) | Materials |
| 4 | NAB (National Australia Bank Limited) | Banks |
| 5 | CBA (Commonwealth Bank of Australia) | Banks |
| 6 | ANZ (ANZ Banking Group Limited) | Banks |
| 7 | AAI (Alcoa Inc.) | Materials |
| 8 | SGT (Singapore Telecommunications Limited) | Telecommunications services |
| 9 | WBC (Westpac Banking Corporation) | Banks |
| 10 | WDC (Westfield Group) | Real estate |
| 11 | NWS (News Corporation) | Media |
| 12 | NEM (Newmont Mining Corporation) | Materials |
| 13 | AMP (AMP Limited) | Insurance |
| 14 | WPL (Woodside Petroleum Limited) | Energy |
| 15 | AGG (Anglogold Ashanti Limited) | Materials |
| 16 | WOW (Woolworths Limited) | Food and staples retailing |
| 17 | QBE (QBE Insurance Group Limited) | Insurance |
| 18 | SGB (St. George Bank Limited) | Banks |
| 19 | WES (Wesfarmers Limited) | Capital goods |
| 20 | CML (Coles Myer Limited) | Food and staples retailing |

from March, June, September or December 2004. Because of these financial year-end differences, 31 December 2004 was used as a cut-off point to ascertain the market capitalisation of the firms.

### The method of content analysis

Content analysis is a data-gathering technique that consists of codifying qualitative information, in anecdotal and literary form, into categories in order to derive quantitative scales of varying levels of complexity (Abbott and Monsen 1979, p. 504, Krippendorf 1980).

The content analysis of annual reports for this study involved reading each annual report and recording information related to each attribute on a coding sheet. A numerical coding scheme was employed for each attribute. For each firm, a value of zero was used to indicate that an attribute did not appear in the annual report; a value of one denoted that the variable appeared in qualitative form; a value of two was assigned if the variable was expressed in numerical (non-fiscal) terms; and a value of three was assigned if the variable was quantified in dollar (fiscal) terms. The coding scheme was based on that of Guthrie *et al* (1999) and was consistent with subsequent studies in IC reporting which followed the Guthrie *et al* framework.

As in previous studies, only voluntary reporting was measured. Information relating to IC that was reported to comply with accounting standards and corporations law was excluded from the data set on the grounds that mandatory reporting does not indicate the level of management commitment towards reporting IC.

The reporting document for content analysis was the entire annual report. Hence, if reporting of the same attribute was repeated in the annual report it was recorded only once. For each attribute investigated, the highest order of reporting was recorded (ie, narrative 1, numerals 2, dollar terms 3). For instance, if an attribute scored 2 in one place and 3 in another place in an annual report, the attribute was scored as 3. This approach is consistent with that followed by Guthrie *et al* (1999) and Guthrie and Petty (2000).

### The effect of size and industry

Previous studies have highlighted the relevance of size and industry in determining the amount of social and environmental reporting (Mathews 1997, Gray 2002, Bozzolan *et al* 2003). The size effect in this study was largely controlled by selecting the top 20 firms by market capitalisation. This approach was taken by Guthrie *et al* (1999) and Guthrie and Petty (2000) in their study of Australian firms, April *et al* (2003) in South Africa and Abeysekera and Guthrie (2005) in their study of Sri Lanka.

The other variable considered in this study was differences in industries. A number of reasons prompted examination of industry effects. First, there is a dearth of research examining the extent of voluntary reporting of intangibles by different industry groups. Second, the few studies that have examined industry effects on the reporting of IC have used diverse classifications of industry sectors (see, for example, Subbarao and Zeghal 1997. Abeysekera 2003c, Bozzolan *et al* 2003). This study used two approaches to analyse industry effect. The first approach employed the GICS world classification of industry sectors, which is also currently used by the ASX. Table 2 clusters the firms by their industry groups.

Because of the small sample size, some groups were merged with similar industry groups to facilitate meaningful comparisons. Comparison among the groups was performed using one-way ANOVA with industry sector as a polychotomous categorical variable and IC reporting as the dependant variable. A *post hoc* test was also carried out to provide multiple comparisons between industry groups.

In the second approach to testing for industry effect, the firms were clustered into two industry groups, "knowledge-based and service firms" and "others" (see Table 3). This grouping of firms was influenced by anecdotal suggestions in the literature that they might differ. A two-sample *t*-test was

**TABLE 2: SAMPLE AUSTRALIAN FIRMS GROUPED BY GICS INDUSTRY CODE**

| Industry group | ASX code & firm name |
|---|---|
| Materials and energy | BHP (BHP Billiton Limited) |
| | RIO (Rio Tinto Limited) |
| | AAI (Alcoa Inc.) |
| | NEM (Newmont Mining Corporation) |
| | AGG (Anglogold Ashanti Limited) |
| | WPL (Woodside Petroleum Limited) |
| Financial | NAB (National Australia Bank Limited) |
| | CBA (Commonwealth Bank of Australia) |
| | ANZ (ANZ Banking Group Ltd) |
| | WBC (Westpac Banking Corporation) |
| | SGB (St. George Bank Limited) |
| | AMP (AMP Limited) |
| | QBE (QBE Insurance Group Limited) |
| | WDC (Westfield Group) |
| Media and telecom | NWS (News Corporation) |
| | TLS (Telstra Corporation Limited) |
| | SGT (Singapore Telecommunications Limited) |
| Retail and others | WOW (Woolworths Limited) |
| | CML (Coles Myer Limited) |
| | WES (Wesfarmers Limited) |

| TABLE 3: SAMPLE AUSTRALIAN FIRMS WITH A SIMPLE TWO-INDUSTRY GROUPING | |
|---|---|
| **Industry group** | **ASX code & firm name** |
| **Knowledge-based & service** | NAB (National Australia Bank Limited) |
| | CBA (Commonwealth Bank of Australia) |
| | ANZ (ANZ Banking Group Ltd) |
| | WBC (Westpac Banking Corporation) |
| | SGB (St. George Bank Limited) |
| | AMP (AMP Limited) |
| | QBE (QBE Insurance Group Limited) |
| | WDC (Westfield Group) |
| | NWS (News Corporation) |
| | TLS (Telstra Corporation Limited) |
| | SGT (Singapore Telecommunications Limited) |
| **Others** | BHP (BHP Billiton Limited) |
| | RIO (Rio Tinto Limited) |
| | AAI (Alcoa Inc.) |
| | NEM (Newmont Mining Corporation) |
| | AGG (Anglogold Ashanti Limited) |
| | WPL (Woodside Petroleum Limited) |
| | WOW (Woolworths Limited) |
| | CML (Coles Myer Limited) |
| | WES (Wesfarmers Limited) |

conducted to determine whether there was a significant difference in IC reporting between these two industry groups.

### Validity and reliability of content analysis

The study used several methods to increase objectivity in recording and analysing data. First, it used the established IC framework introduced by Guthrie *et al* (1999) to capture IC attributes under three categories: internal capital, external capital and human capital. Second, for inter-coder reliability, one researcher read the annual reports and recorded information on the coding sheets and the second researcher independently confirmed the coding of each attribute. Third, since the content of the annual reports was coded by the researchers interacting with the documents, the researchers' frame of reference could influence content analysis. The researchers minimised this error by predefining IC attributes before analysing the content in the annual reports. As an additional precaution, the researchers re-examined the annual reports after a time interval to confirm consistent identification of content in the annual reports (intra-coder reliability).

## RESULTS AND DISCUSSION

### State of IC reporting

*Reporting practice:* The IC reporting examined was not structured and systematic; rather it was inconsistent: the content and frequency of reporting varied across firms and industry sectors. This reconfirms the findings of Guthrie *et al* (1999) and Guthrie and Petty (2000) and could be explained in light of the similar arguments put forward by them.

There is still no established and generally accepted Australian framework for IC reporting, which could be a reason for inconsistency. Another reason could be that firms lack the measurement tools or mechanisms for assessing and reporting changes in their IC base. This justification, however, becomes weaker when the top firms in the market are considered. It can be reasonably assumed that the firms examined in this study have the financial resources to support a move to IC reporting (Guthrie and Petty 2000). An alternative reason for the inconsistency in reporting could be that firms may regard IC reporting as an internal management issue, due to absence of a uniform external IC reporting framework. They may therefore set priorities as to what is to be reported in their annual reports (see Guthrie *et al* 1999). The differential reporting across the firms and industry sectors, in the context of a lack of a uniform external reporting framework, allows firms to set the agenda for reporting.

*Qualitative vs quantitative reporting:* Table 4 shows the aggregated data.

Of the IC-related information reported, 73% was in qualitative terms, which essentially creates difficulty in setting benchmarks for managing, measuring and reporting IC performance. It is acknowledged that some IC attributes are easier to quantify (such as items 6, 7, 14, 15 and 22 in Table 4) and some others are difficult to quantify, in many instances having qualitative form only (eg, corporate culture, management philosophy), but there are avenues for other attributes to be quantified, at least numerically if not consistently in dollar terms, which only a few firms have done. Examples from the annual reports analysed include the Commonwealth Bank of Australia (CBA) reporting on its new management process initiative, the "Which new Bank" program, as follows: "Which new Bank consists of 20 workstreams and over 100 initiatives. All of the workstream activities to June 2004 were completed as planned" (CBA 2004, p. 6).

The CBA took a further step of reporting fiscal benefits related to the "Which new Bank" program: "In our first nine months of the 'Which new Bank' program, we have delivered within planned investment and the benefits have exceeded our target by $37 million" (CBA 2004, p. 6).

| TABLE 4: THE INTELLECTUAL CAPITAL CODING FRAMEWORK WITH AGGREGATED DATA | | | | | | |
|---|---|---|---|---|---|---|
| **IC reporting of the top 20 ASX firms (by market capitalisation) 2004** | | | | | | |
| | **Market cap.** | | | **% of total** | | |
| Top 20 (in $m) | 587,924 | | | 59% | | |
| ASX Total (in $m) | 991,000 | | | | | |
| | **IC attributes in firm annual reports** | | | | Total no. of firms reporting the attribute | % of the total category |
| Codes | Not mentioned [0] | Mentioned in qualitative [1] | Mentioned in quantitative [2] | Mentioned in dollars [3] | | |
| **1. INTERNAL CAPITAL** | | | | | | |
| 1. Patents | | 1 | 2 | 0 | 2 | 3% |
| 2. Copyrights | 0 | | | | 0 | 0% |
| 3. Trademarks | 0 | | | | 0 | 0% |
| 4. Management philosophy | | 19 | 0 | 0 | 19 | 30% |
| 5. Corporate culture | | 12 | 0 | 0 | 12 | 19% |
| 6. Management processes | | 14 | 2 | 6 | 17 | 27% |
| 7. Information systems | | 8 | 0 | 3 | 9 | 14% |
| 8. Networking systems | | 2 | 2 | 0 | 3 | 5% |
| 9. Financial relations | | 0 | 0 | 6 | 2 | 3% |
| Subtotal | | 56 | 6 | 15 | | |
| **Total internal capital score** | **77** | | | | | |
| **Total # of internal capital attributes reported** | **64 [28%]** | | | | | |
| **2. EXTERNAL CAPITAL** | | | | | | |
| 10. Brands | | 10 | 6 | 0 | 13 | 13% |
| 11. Customers | | 3 | 24 | 0 | 15 | 15% |
| 12. Customer loyalty | | 8 | 6 | 0 | 11 | 11% |
| 13. Firm names | | 14 | 6 | 0 | 17 | 17% |
| 14. Distribution channels | | 3 | 22 | 3 | 15 | 15% |
| 15. Business collaborations | | 15 | 2 | 6 | 18 | 18% |
| 16. Licensing agreements | | 3 | 4 | 0 | 5 | 5% |
| 17. Franchising agreements | | 0 | 0 | 3 | 1 | 1% |
| 18. Favourable contracts | | 3 | 4 | 3 | 6 | 6% |
| Subtotal | | 59 | 74 | 15 | | |
| **Total external capital score** | **148** | | | | | |
| **Total # of external capital attributes reported** | **101 [53%]** | | | | | |
| **3. HUMAN CAPITAL** | | | | | | |
| 19. Know-how | | 1 | 4 | 0 | 3 | 7% |
| 20. Education | | 6 | 0 | 0 | 6 | 14% |
| 21. Vocational qualification | | 1 | 0 | 0 | 1 | 2% |
| 22. Training | | 8 | 6 | 3 | 12 | 27% |
| 23. Work-related knowledge | | 6 | 0 | 0 | 6 | 14% |
| 24. Work-related competencies | | 3 | 0 | 0 | 3 | 7% |
| 25. Entrepreneurial spirit | | 12 | 2 | 0 | 13 | 30% |
| Subtotal | | 37 | 12 | 3 | | |
| **Total human capital score** | **52** | | | | | |
| **Total # of human capital attributes reported** | **44 [19%]** | | | | | |

| TABLE 4: THE INTELLECTUAL CAPITAL CODING FRAMEWORK WITH AGGREGATED DATA *Continued* | | | | |
|---|---|---|---|---|
| **SUMMARY TABLE** | **Total** | **Internal** | **External** | **Human** |
| Total IC score of all firm | **277** | 77 | 148 | 52 |
| % of total | | 28% | 53% | 19% |
| Total # of IC attributes reported by all firms | **209** | 64 | 101 | 44 |
| % of total | | 31% | 48% | 21% |
| Type of reporting (in "number" of IC attributes) | | | | |
| Reported in qualitative terms | **152** | 73% | | |
| Reported in numeric terms | **46** | 22% | | |
| Reported in dollar terms | **11** | 5% | | |
| **Total IC attributes reported** | **209** | | | |

| TABLE 5: IC ATTRIBUTES MOST REPORTED PER CATEGORY | | | |
|---|---|---|---|
| **Category** | **IC attribute** | **No. of firms reporting this attribute** | **% of firms reporting this attribute** |
| Internal | Management philosophy | 19 | 95% |
| | Management processes | 17 | 85% |
| External | Business collaborations | 18 | 90% |
| | Firm names | 17 | 85% |
| Human | Entrepreneurial spirit | 13 | 65% |
| | Training | 12 | 60% |

*Category and attribute level findings:* External capital was the most reported category, with 48% of the overall IC reporting in this category. It was followed by internal capital with 31% and human capital with 21%. Within IC categories, the IC attributes that were reported most are listed in Table 5.

The least reported attributes were copyrights and trademarks (with no firms reporting these), franchising agreements and vocational qualification with one "hit" each, and patents with two hits. The attributes which had the most quantitative reporting were distribution channels and customers.

### IC reporting differences among industry sectors

*Industry-wide findings:* Findings based on GICS classification of industries showed that the media and telecom sector reported most, with 12.7 attributes on average, followed by retail and others with 12.3 and financials with 11.9. The materials and energy sector reported least, with an average of 6.5 attributes. The result of the ANOVA on the four GICS industry sectors was significant (*F*-statistics: 10.35, p-value: 0.000). However, results of the *post hoc* test which performed multiple comparisons among these industry groups showed significant differences in the mean reporting levels between the materials and energy sector and the other three industry groups. Those three industry sectors did not show significant differences from each other in the mean reporting level. The finding that the materials and energy sector reported significantly less IC than other sectors is not surprising, as the market values of firms in this sector are not dominated by IC; rather, they are dominated by factors like physical assets, new mining discoveries, advanced mining, manufacturing and refining technology, and world materials and oil prices.

On the other hand, findings based on classification into two industry groups revealed that "knowledge-based and service firms" reported significantly higher IC content than "other firms" on average (12.1 vs 8.4 attributes; *t*-statistics: -2.71, p-value: 0.022). It could be argued that knowledge-based and service firms are more proactive than others because they face greater competition and often have to rely on immutable intangibles that are difficult to imitate to gain a competitive advantage (Teece 2000). Hence, knowledge-based and service firms have the incentive to set the agenda for more IC reporting through the medium of the annual report, and boast of their IC assets to signal their superiority over competitors in possessing immutable assets in their industry.

### Comparison with previous studies

As noted, similar IC studies have been conducted in countries including Ireland, Italy, South Africa and Sri Lanka. However, for greatest relevance, the key findings of this study are compared with those of Guthrie and Petty (2000), as that study was also based on Australian data (see Table 6).

The descriptive statistics show that there has been a modest increase in IC reporting. However, the increase in quantitative reporting is remarkable. Analysis of annual report data revealed that 27% (57 attributes) of the overall IC information was reported quantitatively (22% numerically and 5% in dollar terms) compared with almost no quantitative reporting found by Guthrie and Petty. The fact that such evident effort was made to quantify IC reporting signals an increase in the significance of IC as an area of voluntary reporting.

Table 7 provides category-wise comparisons of findings of the current study and that of Guthrie and Petty (2000). It is evident that external capital reporting increased while human capital reporting decreased comparatively. The increase in external capital reporting could be due to increased competition in the market resulting from liberalisation of trade and commerce. The decrease in human capital reporting could be due to changes of labour laws, giving employers more freedom to hire and fire and leading to reduced endeavours to win the loyalty of employees. As a result the perceived value of HC has probably decreased, leaving less room for HC reporting in the annual reports. However, the exact reasons for the decrease in HC reporting warrant further investigation.

Table 8 compares attribute-level findings between the current study and that of Guthrie and Petty (2000). It shows that the most frequently reported IC attributes in the three IC categories remained largely unchanged. Although the attribute customers remained the fifth most reported attribute overall in the current study (see Table 4), the upsurge in the reporting of attributes like business collaborations and firm names compared to customers (the most frequently reported in the 2000 study) in the external capital category reconfirms the increased competition globally, not only from the developed world but also from the developing and emerging nations such as China and India (Abeysekera 2005b). Stakeholders such as investors now have more choices to invest anywhere in the world, and this rise in competition stimulates intense effort by firms to report such attributes to heighten investor confidence so that existing investors will remain and new investors will be attracted (Holloway 1994).

The greater reporting of training within the HC category confirms its importance as a key source of HC value-creation, as recognised in other IC studies (eg, Abeysekera and Guthrie 2004, 2005).

External capital was the most-reported category in both Guthrie and Petty (2000) and the present study. The consistently high reporting of external capital is evidence of the agenda-setting process of the firms through corporate annual reports. It also reveals how the firms conduct the gatekeep-

**TABLE 6: COMPARISON OF SOME DESCRIPTIVE STATISTICS: GUTHRIE AND PETTY (2000) AND THE CURRENT STUDY**

| | Guthrie & Petty (2000) | Current study |
|---|---|---|
| **Data years** | **1998** | **2004** |
| Number of firms in the sample | 20 | 20 |
| Number of attributes in the IC framework | 24 | 25 |
| Average number of attributes reported per firm | 8.8 | 10.5 |
| Minimum number of attributes reported for any one firm | 2 | 3 |
| Maximum number of attributes reported for any one firm | 17 | 15 |
| Total number of attributes reported across all 20 firms | 176 | 209 |
| Number of attributes reported in quantitative terms | 1 | 57 |

**TABLE 7: COMPARISON OF IC CATEGORIES: GUTHRIE AND PETTY (2000) AND THE CURRENT STUDY**

| | Guthrie & Petty (2000) | Current study |
|---|---|---|
| Internal capital as a percentage of total reporting | 30% | 31% |
| External capital as a percentage of total reporting | 40% | 48% |
| Human capital as a percentage of total reporting | 30% | 21% |

**TABLE 8: COMPARISON OF TOP IC ATTRIBUTES: GUTHRIE AND PETTY (2000) AND THE CURRENT STUDY**

| Category | Top IC attributes (Guthrie & Petty 2000) | Top IC attributes (current study) |
|---|---|---|
| Internal | Management processes | Management philosophy |
| | Management philosophy | Management processes |
| External | Customers | Business collaborations |
| | Business collaborations | Firm names |
| Human | Entrepreneurial spirit | Entrepreneurial spirit |
| | Work-related knowledge | Training |

ing function in their media at two levels: first, by reporting more attributes from the external capital category and, second, by including a higher level of quantitative reporting for several external capital attributes (see Table 4). Both the differential reporting of IC attributes and the nature of reporting (qualitative or quantitative) have the potential to influence the thinking of stakeholders about the relative importance of IC attributes from the firm's perspective, rather than that of stakeholders. It could be argued that stakeholders may be influenced about the types of IC attributes to be thought about by providing more information about them in annual reports, and that reporting certain IC attributes in quantitative form may imply that they deserve serious thought.

The finding that firms placed more importance on IC attributes of the external capital category could be foreseen in the wake of intense competition both domestically and globally, resulting in frequent engagement in business collaborations at the strategic, tactical or operational level. As Ueng *et al* (2000) point out, business collaborations with developed countries yield higher returns than those with developing countries. Thus IC reporting by Australian firms enables them to attract investor capital from other developed nations. It can be argued that increased competition creates the background agenda for the firms which, in turn, shapes their public (for stakeholders such as investors, in this case) agenda-setting by projecting those IC attributes that determine success amid fierce competition.

Attributing importance to internal capital attributes such as management philosophy, corporate culture and management processes may be a response to the erosion of investor trust in corporate financial information after highly publicised corporate collapses (Main 2003, p. 263). Management would therefore be inclined to project the firm as having a strong philosophy, transparent culture, and effective management processes to protect and enhance investor interest (see Appendix for comparison).

On the other hand, reporting more on human capital categories such as training (indicating it as a priority of the firm) and entrepreneurial spirit (alluding to the creativity, research and development involvement and adaptability of employees) can serve the dual purpose of assuring stakeholders such as investors that the firm is managed and served by capable and competent employees, and may increase the visibility of the firm in the labour market to attract the best people.

## CONCLUSION

It can be concluded from the study that there is still no generally accepted and established framework for IC reporting. However, the need for such reporting appears to have been recognised and generally understood, with a considerable advance in quantifying IC reporting compared with the practice in 1998. Nevertheless, in the absence of a uniform external IC reporting framework, questions remain about what to report and how to report. This study also identified differences in IC reporting across industry sectors which may warrant different approaches to managing, measuring and reporting IC.

The study adds to the understanding of the current IC reporting practices of the top Australian firms by updating the findings of Guthrie and Petty (2000). Second, as the first study to empirically test industry effect on IC disclosure based on the GICS, it adds to the IC reporting literature. Further, the study demonstrates differences between "knowledge-based and service firms", and "others", which was previously predominantly an anecdotal observation. This is one of the few studies in the IC reporting literature to use a theoretical framework to explain IC reporting practices of firms, and appears to be the first study in IC reporting to apply media agenda-setting theory. Finally, the study confirms that there is no consistent and mutually agreed framework for IC reporting in Australia. However, it is acknowledged that a single framework for all firms might not serve the best purpose because of critical industry differences.

The study and the results are subject to four limitations. First, as a research method, content analysis involves the application of judgment in deciding whether an IC attribute belongs to a given IC category. Although every effort was made to ensure the reliability of the coding process and to minimise error, there remains the possibility of a few errors of coding. Further, content analysis is a static tool to capture a phenomenon at a given point in time. It does not cast light on underlying processes, nor does it reveal much about strategies over the longer term. Content analysis provides an overview of what is happening and may be used to identify trends, but it lacks the potential to make qualitative assessments regarding levels of motivation and the commitment to a specific strategy or corporate philosophy (see Guthrie *et al* 2004). Second, the sample used represents the largest firms by market capitalisation only. Therefore the results cannot be generalised to the IC annual reporting practices of all Australian firms. Third, by replication and comparison with Guthrie and Petty's (2000) study, this study compares two different time periods. However, it does not capture a trend in IC annual reporting practices over the years, as it does not analyse IC reporting longitudinally over these years. Instead, it compares the reporting practices of 1998 with those of 2004. Finally, besides actual differences, there could be some differences (error terms) in

the results owing to inter-coder differences between this study and that of Guthrie and Petty (2000), since different researchers were involved in the coding process of the annual reports.

Five avenues are suggested for further research. First, an obvious extension would involve expanding the sample size to develop a more comprehensive understanding of IC practices of mid-sized and small Australian firms. Second, enlarging the sample in terms of size and industry sector representation would allow more statistical inferences to be made about reporting practices and would increase the robustness and external validity of the findings. Third, relationships could be investigated between IC reporting and other variables, such as firms classified by most frequently traded shares, differences in ownership, and political visibility. Fourth, further sophistication could be added to the coding framework used in this study by attempting to assess the quality of the reporting in the annual reports. In particular, the location of IC reporting in the annual report is potentially revealing in terms of formulating a view of the firm's commitment to the development of its IC. For instance, comments made in the managing director's report may carry more authority and credibility than comments made elsewhere. Finally, it can be suggested that multiple research methods could provide better insights into IC reporting practices. One such additional method could be interviews, which could enrich the understanding of the organisational interactions that ultimately decide what is reported and the manner in which the information is presented. This would be instrumental in furthering the understanding of the complex human dynamics that surround the IC reporting framework.

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## APPENDIX: COMPARISON OF IC ATTRIBUTES REPORTED

| 1. INTERNAL CAPITAL | Guthrie & Petty (2000) | This study |
|---|---|---|
| 1. Patents | 3 | 2 |
| 2. Copyrights | 1 | 0 |
| 3. Trademarks | 2 | 0 |
| 4. Management philosophy | 12 | 19 |
| 5. Corporate culture | 6 | 12 |
| 6. Management processes | 15 | 17 |
| 7. Information systems | 10 | 9 |
| 8. Networking systems | 3 | 3 |
| 9. Financial relations | 1 | 2 |
| **Subtotal** | **53** | **64** |

| 2. EXTERNAL CAPITAL | Guthrie & Petty (2000) | This study |
|---|---|---|
| 10. Brands | 9 | 13 |
| 11. Customers | 16 | 15 |
| 12. Customer loyalty | 7 | 11 |
| 13. Company names | 5 | 17 |
| 14. Distribution channels | 10 | 15 |
| 15. Business collaborations | 13 | 18 |
| 16. Licensing agreements | 8 | 5 |
| 17. Franchising agreements | 1 | 1 |
| 18. Favourable contracts | 1 | 6 |
| **Subtotal** | **70** | **101** |

| 3. HUMAN CAPITAL | Guthrie & Petty (2000) | This study |
|---|---|---|
| 19. Know-how | 6 | 3 |
| 20. Education | 6 | 6 |
| 21. Vocational qualification | 1 | 1 |
| 22. Training | | 12 |
| 23. Work-related knowledge | 12 | 6 |
| 24. Work-related competencies | 9 | 3 |
| 25. Entrepreneurial spirit | 19 | 13 |
| **Subtotal** | **53** | **44** |

## NOTES

1 It should be noted that Guthrie and Petty's (2000) paper was based on the Guthrie *et al* (1999) study, which was presented at the OECD conference in Amsterdam in 1999.

2 Global Industry Classification Standard (GICS), used to define industries around the world. The ASX has been using the GICS since 1 July 2002 (Source: http://www.asx.com.au/research/indices/gics.htm).

3 Source: Aspect Financial Analysis database and the ASX website.

4 Table prepared with input from Aspect Financial Analysis database and the ASX website.

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